

PRIMARY VOLATILES DURING THE 2010 APPARITION OF COMET 103P/HARTLEY-2 AS REVEALED AT INFRARED WAVELENGTHS: PRODUCTION RATES AND SPATIAL PROFILES. M. J. Mumma¹, M. A. DiSanti¹, B. P. Bonev^{1,2}, L. Paganini^{1,3}, G. L. Villanueva^{1,2}, E. L. Gibb⁴, J. Keane⁵, G. A. Blake⁵, R. S. Ellis⁵, K. Magee-Sauer⁶, M. Combi⁷, H. Boehnhardt⁸, M. Lippi⁸, and K. Meech⁵. ¹Goddard Center for Astrobiology, NASA GSFC, MS 690.3, Greenbelt, MD 20771 (michael.j.mumma@nasa.gov), ²Dept. of Physics, Catholic U. of America, Washington, DC 20064, ³NASA Postdoctoral Fellow, NASA GSFC, MS 690.3, Greenbelt, MD 20771, ⁴Univ. of Missouri – St. Louis, St. Louis, MO 63121, ⁵Institute for Astronomy, Univ. of Hawaii, Honolulu, HI 96822, ⁶California Institute of Technology, Pasadena, CA 91125, ⁷Rowan University, Glassboro, NJ 08028 – 1701, ⁸University of Michigan, Ann Arbor, MI48109-2143, ⁸ Max Planck Institute for Solar System Research, DE 37191 Katlenburg-Lindau, Germany.

We acquired high resolution near-infrared spectra of comet 103P/Hartley-2 with NIRSPEC at the W. M. Keck Observatory and CRIRES at the ESO VLT, emphasizing primary volatiles before, during, and after the comet's close approach to Earth (July-December 2010; $R_h = 1.62 \rightarrow 1.26$ AU). We will present the mixing ratios for trace volatiles (C_2H_6 , HCN, CH_3OH , etc.), their rotational temperatures, and their spatial distributions in the coma both along the polar jet (UT 19.5 October) and nearly orthogonal to the jet (UT 22.5 October).

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